

Monthly Activity Report

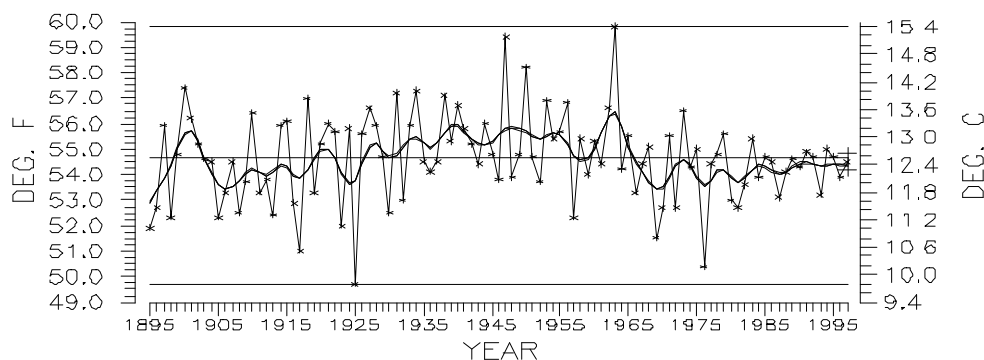
October 1997

National Climatic Data Center

A National Resource for
Climate Information



U.S. NATIONAL TEMPERATURE
OCTOBER, 1895-1997



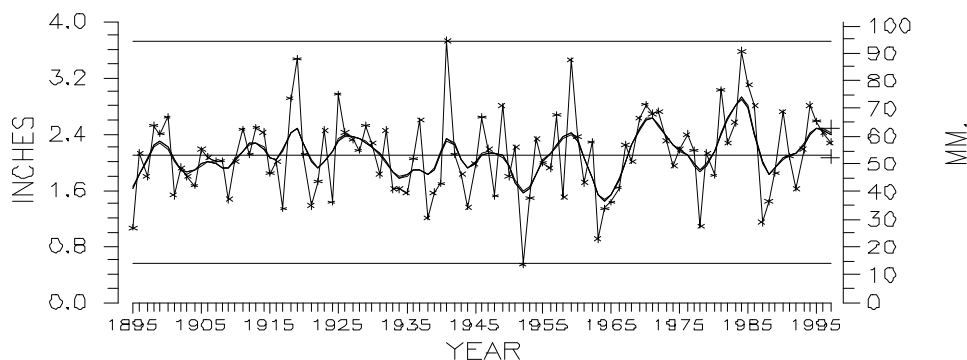
National Climatic Data Center, NOAA

STRAIGHT HORIZONTAL LINES ARE,
MAXIMUM VALUE (TOP),
LONG-TERM AVERAGE (MIDDLE),
MINIMUM VALUE (BOTTOM)

THICK SMOOTH CURVE
IS 9-POINT BINOMIAL
FILTER.

CONFIDENCE INTERVAL
FOR CURRENT YEAR IS
INDICATED BY '+'

U.S. NATIONAL PRECIPITATION
OCTOBER, 1895-1997



National Climatic Data Center, NOAA

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Preliminary data for October 1997 indicate that temperature averaged across the contiguous United States was below the long-term mean ranking as the 44th coolest October since 1895 (Top Figure). None of the country was much warmer or much cooler than normal.

Preliminary precipitation data indicate that October 1997 was the 40th wettest such month since 1895 (Bottom Figure). Over seven percent of the country was much wetter than normal while nearly four percent of the country experienced much drier than normal conditions.

DIRECTOR'S HIGHLIGHTS

President/Vice President Host Conference on Global Warming

Thomas Karl, NCDC's Senior Scientist, attended the White House Conference on Climate Change: The Challenge of Global Warming. This conference was televised to 35 regional sites via internet communications and brought together 200 people including a range of national leaders and virtually all of the President's cabinet secretaries to explore the scientific, economic, and international aspects of climate change. The goals of the conference were twofold: (1) help improve the understanding of climate change among all aspects of American society; and, (2) form U.S. policy as the Administration works to develop an appropriate response. This effort was particularly timely, as an international climate change conference is being prepared by the Administration to be held in December.

NCDC Assists Vice President's Office

The National Climatic Data Center (NCDC) provided (to NESDIS Public Affairs) an average heat index for the State of Louisiana for the month of July 1997 for Vice President Gore's Office. The average was calculated using summarized data for New Orleans and Baton Rouge from the *International Station Meteorological Climate Summary* CD-ROM. The values were lower than what might be expected, ranging from the low to mid 90's at 3:00 p.m. NCDC was not able to determine the Vice-President's planned use of these data.

AWIPS Requirements Meeting Held at NCDC

Representatives from the National Center for Environmental Prediction (NCEP), the Cooperative Program for Operational

Meteorology, Education and Training (COMET), the National Weather Service/Office of Meteorology (NWS/OM), Western and Southern Region and the University Corporation for Atmospheric Research (UCAR) met at NCDC October 29 - 30, to discuss the broad NWS requirements for the archiving and servicing of AWIPS data at NCDC and to exchange information on AWIPS datasets, formats and dissemination options. NCDC requested that members define and prioritize required products for the legal community and NWS offices so that costs of ingest, archive and dissemination can be determined for future discussions with NWS on funding requirements. Action items and recommendations are contained in the full workshop summary.

Data Provided to Mexico's National Meteorological Center

The National Climatic Data Center (NCDC) provided Mexican surface hourly and synoptic data for the beginning of available record through 1989 to Mexico's National Meteorological Center. The Mexican government had lost their digital archive of data through 1989, and requested the data as a replacement. Due to their inability to read tape media, NCDC provided the data on CD-ROM.

Snowfall Extreme Statistics for FEMA

NCDC has produced extreme snowfall statistics to be used by FEMA beginning this winter in the declaration of disaster areas. The statistics are derived from daily data collected by the National Weather Service via their Cooperative Data Observation Program and date from 1948 to 1996. These data, from approximately 7,000 volunteer observing sites, have been processed and archived

monthly at the NCDC. The statistics include: greatest snowfall in 24 hours and snowfall amounts for return periods of 100, 50, 25 and 10 years for the snowfall season and 1, 2 and 3 day periods. FEMA will distribute this product very soon to be used by each state to determine disastrous snowfall events down to the county-area level.

Station History Rescue

NCDC's metadata rescue project for station history forms is nearing completion. The project, which began four years ago under ESDIM sponsorship, involved the digitization of late 1800's through 1948 station history records. Approximately 25,000 unique stations were identified for this period totalling about 100K keypunched records. The keypunching was completed in 1996 and the quality assurance of these records is now about half complete, with an expected completion date of January 1998. Once complete this metadata collection will be merged into the existing post 1948 station history data base and made accessible via CLISERV. The

current project leader for this effort is Dave Smith with assistance from Elaine Mason.

GSAS Used to Process First GOES Requests at NCDC

During October, the National Climatic Data Center (NCDC) serviced its first Geostationary Operational Environmental Satellite (GOES) data requests on-site, using the new Geostationary Satellite Archive System (GSAS) software. The web based GSAS software runs on an NCDC workstation and provides GOES tape inventory search and data extraction capabilities. GSAS provides for data output to magnetic media, ftp transfer, and to the McIDAS Abstract Data Distribution Environment (ADDE) for hardcopy image processing. NCDC's GOES digital data are stored on IBM 3590 cartridges created at the University of Wisconsin's Space Science and Engineering Center (SSEC) and shipped twice weekly to NCDC for archival. GOES inventory at NCDC dates from September 19, 1997, to the present. Requests for GOES data prior to that date will continue to be processed by the SSEC.

CLIMATE DATA AND INFORMATION SERVICES

◆ Data Base Development

3590 Archive Project

In October, the Office of Satellite Data Processing and Distribution Information Processing Division performed two separate Initial Program Loads (IPLs) of the Central Environmental Satellite Computer System (CEMSCS) production system (SY7) to implement the Custom Built Installation Product Offering (CBIPO) which provides IBM 3590 support to NCDC. CEMSCS experienced problems during both IPLs and have reverted back to their prior configuration; testing continues. Once 3590 support is fully implemented on the production system, NCDC will begin parallel

testing of the new Archive system using 3590 media (1 tape every 2 ½ days) in the 3494 Tape Library Dataserver against the existing system which uses 3480 media (approximately 50 tapes per day) which must be retrieved daily from CEMSCS.

Year 2000

Roger Winchell supplied the latest status on NCDC's Year 2000 progress to NOAA HQ and is developing a Center level Plan of Actions and Milestones (POA&M), a NCDC Year 2000 Tracking System, and a detailed survey which is scheduled for distribution in early November. NCDC is reporting on 91 separate systems in the

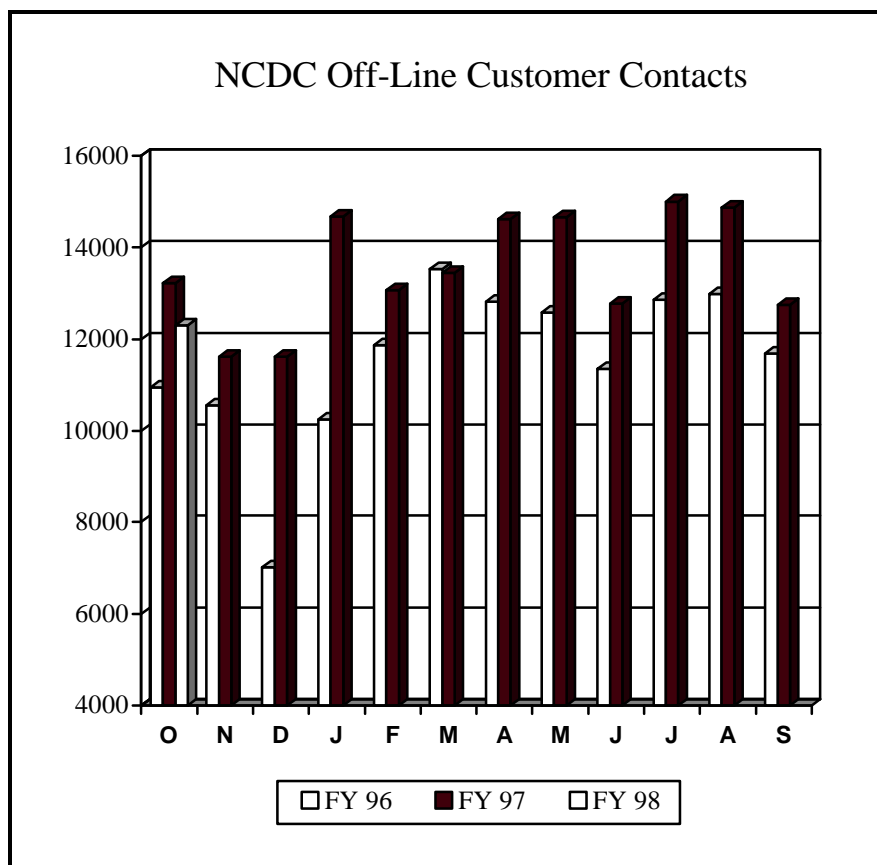
NESDIS Year 2000 data base. All systems have completed the Assessment Phase and 36 systems (40%) have completed the Renovation Phase.

Utility programs and commands have been successfully executed on a test network of two IBM workstations. The test platform and network are being used to test a selected application system, Geographical Edit and Analysis (GEA), using pre, post, and at year 2000 dates. PC-based testing (Windows 95) has begun using the Mixing Height application system. The testing of an application system on a SUN workstation is scheduled to begin in November.

◆ Data and Information Distribution

El Nino

Climate Variations Bulletin (CVB), which was distributed via mail and the NCDC Home Page, has two pages devoted to a brief description of El Nino and the effect that three recent El Ninos have had on precipitation and temperature in two regions of the United States (the Pacific Northwest and the Gulf Coast states). In the next few months NCDC will continue to use the CVB as a vehicle to help put the current El Nino event into historical perspective, using data gathered by the National Weather Service and archived at the NCDC.



NCDC Places New Master Station History On-Line

The National Climatic Data Center (NCDC) placed its new master station history on-line as part of its "Inventories" system within the "Climate Resources" page on the WWW. The new master station history provides a great deal of information for users such as cooperative station number, WBAN number, FAA call letters, latitude, longitude, elevation, etc. For quicker Internet access, the file is divided into several subsets, such as all currently active stations, stations with WBAN numbers (i.e., those with hourly data), and stations with cooperative station numbers (i.e., those with daily data). The same inventory web system also provides global inventories for hourly surface data, an ASOS station list, and NWS station histories (includes anemometer height and other metadata).

♦ Satellite Data Requests

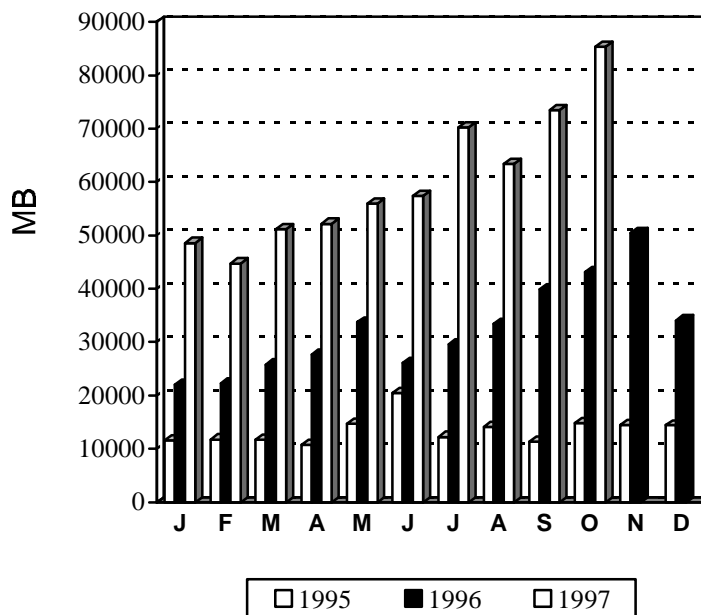
Borneo Fires Captured on Satellite

Not since Hurricane Fran made landfall last year has there been such a huge demand for satellite data and imagery for a single event. The massive Borneo fires, so well-captured on the National Oceanic and Atmospheric Administration's (NOAA) Polar-orbiter Operational Environmental Satellites (POES), has been a major news maker worldwide, especially since the drought conditions in Southeast Asia and Indonesia are blamed on the high-profile El Nino conditions in the Equatorial Pacific. A number of POES satellite images spanning the period September 20 to October 3, 1997, are now on-line at the On-line Images section of National Climatic Data Center's (NCDC) web site. In addition to the images, various national and international organizations, from the Indonesian government to the CIA have contacted the NCDC Satellite Services Group for the original digital data to further process and analyze this event. Several magazines/news groups including the National Geographic Society and ABC News have obtained the images directly from the web site.

GOES 8 Data Supplied for Oklahoma/Kansas Twisters

Mr. Paul Kirkwood of the Wichita, KS National Weather Service Office is studying an outbreak of tornadoes on May 26, 1997, in Oklahoma and Kansas. This outbreak preceded the deadly Jarrell, TX outbreak by one day and was caused by the same weather system. The National Climatic Data Center (NCDC) Satellite Services Group supplied hourly GOES 8 visible (Channel 1) and water vapor (Channel 3) images from 18:00 UTC May 25 to 02:00 UTC May 26, 1997, for

NCDC Data Downloaded



Mr. Kirkwood. The images later may be placed online as items on the "Images of Hurricanes and Other Storms" page.

♦ Congressional Requests

Senator's Office Requests Assistance

The Department of Defense (DoD) Inspector General's office contacted the National Climatic Data Center (NCDC) for wind/climate data for the Dugway Proving Ground near Salt Lake City, UT. The DoD is involved in an audit/evaluation of a chemical leak in May 1997 at this facility. Senator Ron Wyden of Oregon requested the audit after touring the facility as part of a delegation with regards to this incident. Wind data from Salt Lake City and cooperative records from Tooele County, UT, were sent via facsimile. These were the closest data to the area of interest in the NCDC archive.

Help for Congressman Skeen's Constituent

The Office of Congressman Skeen (NM) called the National Climatic Data Center (NCDC) for help in obtaining Antarctic data for a constituent searching for data from the 1950's/1960's for a friend in Australia. NCDC supplied an inventory of available data.

◆ Requests from News Media

CBS News and Global Warming

National Climatic Data Center's Senior Scientist, Thomas R. Karl, was interviewed by CBS News on the subject of Global Warming. The program aired on October 22.

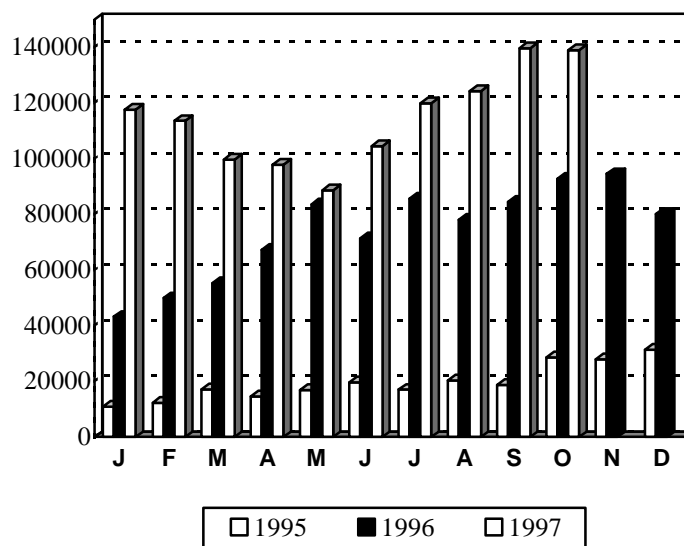
NBC News, World Series & Cold Weather

On October 21, 1997, the Florida Marlins played the third game of the World Series in Cleveland, OH, where temperatures dipped into the mid to upper 30's. The frigid temperatures are atypical of the type conditions the Marlins normally encounter. NBC news contacted the National Climatic Data Center (NCDC) to obtain meteorological data for a news story centered around the Series and the outbreak of cold weather in Cleveland. They were provided with temperatures for the previous ten World Series to use as a comparison. On air credit was given to NCDC for this service.

ABC News Assisted

ABC News will issue a report on Sebastian Junger's book entitled "The Perfect Storm." This book focuses on the 1991 Halloween Nor'easter that battered the Northeast United States. This storm absorbed Hurricane Grace on October 29,

NCDC On-Line Users



and became most intense on October 30 when it produced 101 foot waves in the open Atlantic, and later formed an unnamed hurricane. In terms of total destruction from tidal flooding, this storm ranks as one of the worst. The National Climatic Data Center (NCDC) furnished files containing Geostationary Operational Environmental Satellite (GOES) images to ABC News.

National Public Radio Airs NCDC Data

National Public Radio aired a one-minute segment on Tuesday, October 28 concerning the first transmission of weather reports on November 1, 1870. NCDC's Research Customer Service Group was able to find a copy of the first transmission, along with a detailed history of the first year of operation of the U.S.'s first National Weather Service. Data were extracted from the "Annual Report of the Chief Signal Officer" for 1871. Items of interest included monthly office rental rates for the weather stations, which ranged from free to \$28.50 per month, a notation of the difficulty finding an office in post Civil War-devastated Vicksburg, MS, and a notation of the burning of the Chicago station, what later became known as the Great Chicago Fire.

♦ Interesting Requests

Migrant Smuggling

The U.S. Coast Guard contacted NCDC to obtain forecast data for litigation involving the smuggling of illegal immigrants from the Bahamas into the U.S. A security guard noticed a boat off-loading ten smuggled immigrants into Florida. The guard alerted U.S. Border Patrol who proceeded to arrest the individuals. The defendants stated that they had launched the boat from inside the U.S., because the sea conditions were too rough for the small craft's voyage to have originated from the Bahamas. The Coast Guard requested a coastal waters forecast for southern Florida from NCDC for December 24, 1996.

NCDC Supports NASA Balloon Research Project

The National Scientific Balloon Facility (NSBF) is performing preliminary research to properly select a launch site for high altitude research balloons. The balloons will be released into the polar vortex to study its atmospheric chemistry. The candidate locations include Thule, Greenland; Esrange, Sweden and Andoya, Norway. The National Climatic Data Center (NCDC) will provide ten years of surface and upper atmospheric data for these locations. The site will be surveyed this winter and the actual experiments will begin later in 1998. NSBF is a National Aeronautics and Space Administration (NASA) facility operating under contract by New Mexico State University.

The Era of the Flying Saucer

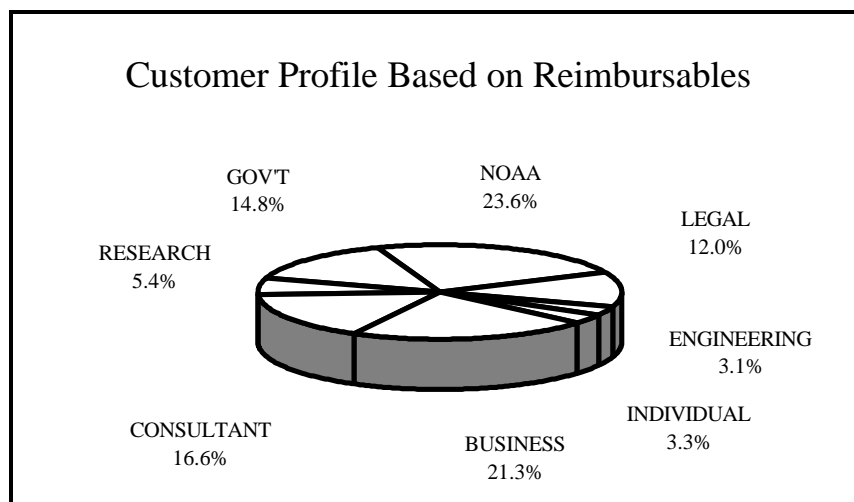
The National Climatic Data Center supplied a French author with surface weather observations from the area surrounding Mount Rainier, WA for June 24, 1947. It was on this date at 2:59

P.M. Pacific Standard Time that Mr. Kenneth Arnold was flying a single engine plane when he reported seeing a formation of unidentified flying discs near Mount Rainier. Reporters later coined the term "flying saucer" to describe the discs, and the era of flying saucer reports was launched. Less than a month later, perhaps the most controversial of all such reports took place in the so-called Roswell (NM) Incident, in which alien bodies were supposedly recovered from a crash site. The author is interested in confirming weather observations for that day for a book he is writing on the subject. Weather observations show that the skies were clear and the visibility 40 miles at Stampede Pass at the time of the reported sighting.

♦ Technology Applications

Geostationary Satellite Archive System (GSAS) Installed

Personnel from the University of Wisconsin's Space Science and Engineering Center (SSEC) visited the National Climatic Data Center (NCDC) to install the new GSAS software and provide training to NCDC satellite personnel. The new software is web-based and provides GOES inventory search and tape extract functions. Doug Ross worked with Systems Branch personnel to configure GSAS for NCDC's GOES customer servicing operation, and also provided training to Orkand satellite personnel on procedures used to



service both GOES hardcopy and ftp requests. Work was also done to set up and configure McIDAS-X accounts on the Earthview workstation for Orkand satellite personnel.

New CSD Customer Servicing System Proposed

The Climate Services Division (CSD) presented a proposal to management on a plan to service both on-line and off-line customer requests from an Oracle relational database. This plan evolved from work on the Unisys migration project and integrates other Center projects such as Marada, High Density Storage System (HDSS) and OASIS3. The proposed system offers several advantages over doing just a straight conversion

of programs from the Unisys to other platforms. The number of programs that would have to be migrated off the Unisys would be significantly reduced since programs used for data selection would be replaced by Structured Query Language (SQL) using Oracle's web development system. Also, the relational database offers increased flexibility for customer servicing and reduces program maintenance costs for the future. CSD is currently developing plans for a prototype system to demonstrate that this approach is feasible. A "go or no go" decision will be made before the end of the year. (Note: CSD's Unisys migration software survey identified 125 programs that need to be migrated or replaced.)

SCIENTIFIC AND PROFESSIONAL ACTIVITIES

♦ Working Groups/ Committees/ Meetings

National Research Council's Climate Research Committee Meeting

NCDC's Senior Scientist, Thomas Karl, chaired the Climate Research Committee Meeting Washington and presented a lecture titled "Perspective on a Growing Problem" in the open session: Status of Observing Systems and Access to Data Related to Climate Research.

Applied Climatology Conference.

The 10th Conference on Applied Climatology, sponsored by the American Meteorological Society was held in Reno, NV, October 20-23, 1997. David R. Easterling of NCDC was the Program Chair. Other NCDC participants included Tom Karl, Rob Quayle, Tom Peterson, Tim Owen, Richard Heim, and Ned Guttman. There were a total of 180 participants in the

conference, and NCDC was well represented in all the major themes of the meeting. Topics included Tom Karl's talk on climate extremes, Rob Quayle on heat wave mortality and wind chill indices, Tom Peterson on quality control of climate data, Ned Guttman on the Standardized Precipitation Index, Richard Heim on the 1971-2000 normals, Tim Owen and Kevin Gallo on satellite-based detection of the urban heat island effect, and Dan Mann's talk (given by David Easterling) on the Web-based Climate Data Visualization (CLIMVIS) program.

NOAA WebShop'97 and FedWeb'97

The NOAA WebShop'97 was held in Silver Spring, MD, on October 22-23, 1997, sponsored by the Environmental Services Data and Information Management office. Several NCDC staff attended this workshop and the FedWeb'97 conference, held in Bethesda, MD, on October 27-31, 1997, sponsored by the Federal World Wide Web Consortium. Valuable information and

contacts were gathered regarding web development items such as Java, user-interface design, web logs, search engines and other NOAA web development efforts such as the NOS MapFinder and the Web Image Spreadsheet Tool.

NOAAServer Meeting in Silver Spring, MD

A NOAAServer meeting was held in Silver Spring, MD, on October 22nd. The primary purpose was to review the status of all NOAAServer sub-projects, detail the accomplishments and the shortfalls in development over the past year. It was also officially announced that Wayne Brazille was leaving his NOAA position and therefore the technical lead slot for NOAAServer. This position will, for the time being, be filled by committee. Dan Manns represented NCDC.

NEXRAD Users' Workshop

The National Climatic Data Center will host a NEXRAD Users' Workshop on November 19-20, 1997. The objectives of the workshop are to update users on data processing and on-line services, plans for conversion of the current NEXRAD data system to an open-system architecture, and uses of NEXRAD data for precipitation and wind research. Attendees will include National Weather Service (NWS), Federal Aviation Administration (FAA) and other government representatives, university researchers, consultants and contractors.

NEXRAD Seminar

NCDC's Dick Cram presented a seminar on the status and plans for NEXRAD program development. Obstacles and solutions were presented for the major development areas of Level II and III data processing and the

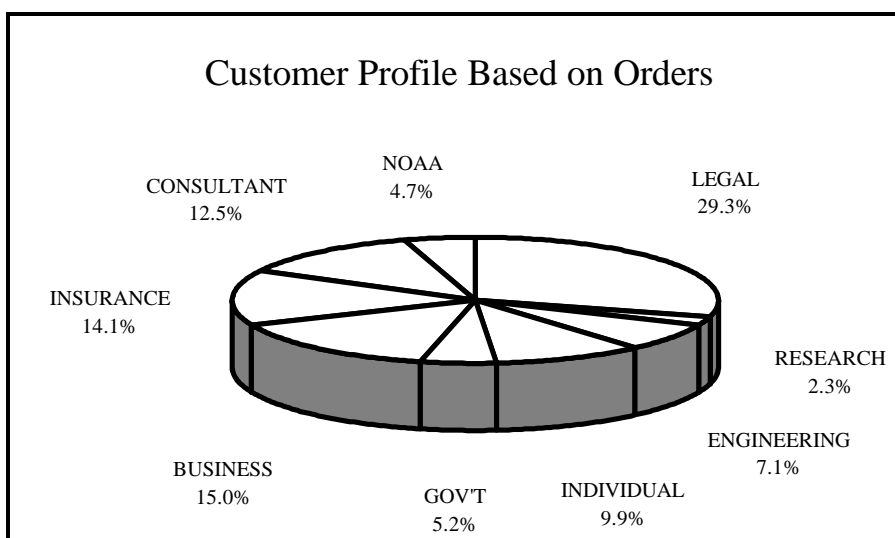
NEXRAD Data Base. Data receipts and reports, customer profiles, volumes of data distribution and improvements to services for NEXRAD data users were also discussed.

Network+InterOp Conference

NCDC personnel, Steve Evans and Doug Snowden, attended the fall Network+InterOp Conference in Atlanta, GA. Each attended one day of the conference and divided their time between keynote sessions, discussion panels, and the extensive conference exhibit halls. It is the nation's largest trade show for displaying networking, Internet, and communication products and services.

NOAA/NASA Long-term Archive System Under Development

A prototype long-term archive system for NASA's Mission To Planet Earth (MTPE) is being developed. The National Climatic Data Center (NCDC) will act as the gateway to the database where users come in via the NCDC web to do inventory searches and place orders for ftp. Data archival and inventory functions will be handled by NASA. NCDC will develop a web system to access this information. Members of the Climate Services Division met with NASA personnel on October 30 to discuss the details of this project.



◆ Visitors

Brazilian Visitor

Mr. Jose Matos, Parana State Meteorological System engineer, Brazil visited the National Climatic Data Center (NCDC) to discuss data archiving, quality control and radar data. The NEXRAD Level II and III processing and archiving procedures were discussed and Mr. Matos was shown how to operate the NEXRAD Principle User Processor (PUP) to display, enhance, enlarge and print NEXRAD data. The Climate Services Division briefed Mr. Matos on NCDC's customer service functions with emphasis on the Satellite Services Group activities. Demonstrations of McIDAS, the Satellite Active Archive (SAA) and the Historical Geostationary Operational Environmental Satellite (GOES) Browser were provided. The Brazilian Meteorological Center intends to purchase a GOES receiving station to capture GOES Variable (GVAR) data in real-time and re-distribute the data via the Internet to various research institutions and universities within their country.

Snow Melting Investigation by ASHRAE

Mr. Bill Chapman, representing Technical Committee 6.1 of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), visited the National Climatic Data Center (NCDC) on October 20. TC 6.1 investigates processes used in the melting of snow accumulations, and Mr. Chapman was concerned that with the implementation of Automated Surface Observing System (ASOS), climatological measurements of snowfall would cease. After reviewing the current method, Mr. Chapman decided that using a data base from earlier years would be most prudent.

Research on Butterfly Populations and Habitat

Tom Ross met with Dr. Camille Parmesan from the National Center for Ecological Analysis and

Synthesis at the University of California, Santa Barbara. Dr. Parmesan was interested in obtaining temperature, precipitation, and snowfall data from mainly high alpine locations across parts of the western third of the U.S. The researcher is trying to correlate historical weather and climate information with butterfly populations and habitat.

◆ Interactions with NOAA Line Offices

National Centers for Environmental Prediction (NCEP) Personnel Visit

Joe Irwin and Jeff Ator, National Weather Service National Center for Environmental Prediction (NCEP), met with National Climatic Data Center (NCDC) personnel to discuss future options for ingesting NCEP data by the NCDC. Mr. Irwin offered to provide the Data Operations Branch (DOB) with BUFR decode software so that NCDC can obtain marine and other data forms from BUFR coded NCEP data files. He also agreed to provide the DOB with operational access to NCEP GTS bulletin level files (in WMO code). These files contain international observations traffic separated by data type. NCEP and NCDC will work together on both options to insure a robust operational data ingest system that meets operational processing needs and archive requirements.

Data Provided to National Weather Service (NWS) Office of Hydrology

The National Climatic Data Center (NCDC) provided daily, hourly, and 15-minute precipitation data for the full period of record to the National Weather Service Office of Hydrology (NWS/OH). NWS/OH is beginning work on a study of short-duration heavy rainfall for the eastern U.S. The study will provide various recurrence intervals (e.g., 5-year, 50-year, 100-year) for heavy rainfall events and NCDC may be able to utilize these results in its upcoming U.S. Climatic Atlas.

Coordination with the National Weather Service

Steve Doty, Systems Development Staff, participated in the biannual meeting of the National Weather Services' Implementation and Phaseover Committee (IPOC). The members of this committee are in the front lines of the NWS modernization as they are implementing ASOS, NEXRAD, AWIPS, NOAA Weather Radio, etc. Of particular interest to NCDC are the efforts to move NEXRAD to an open systems architecture, the addition of more FAA ASOS sites, and the pending implementation of the first 21 AWIPS sites. Also, this year a renewed emphasis was placed on the cooperative observer program. This program has seen additional visibility over the

past year or two with the new interest in snow observations and the need for county forecast verification observations.

Center Assists Hungarian Meteorological Service (HMS)

NCDC's Tom Reek spent five days in Budapest, Hungary, working with the Hungarian Meteorological Service with the evaluation of a new hardware and software system called Strip Chart Conversion Programme (SCCP). The SCCP provides high volume digitization of meteorological strip chart data, such as temperature, pressure, and precipitation. The SCCP is being considered for use in the WMO sponsored DARE IV data rescue program.

EMPLOYEE ACTIVITIES

♦ EEO and Community Outreach**Red Cross Blood Drive**

Roger Winchell coordinated NCDC's semi-annual blood drive on October 28. Over 35 pints of blood were collected. The Red Cross goal was 25 pints.

Career Day

Several Center personnel participated in the Haw Creek Elementary School Career Day. This is the third or fourth year of participation for some of the individuals.

In addition, John Jensen was invited to speak to the third grade class at Fairview Elementary School on the subject of El Nino.

Tom Ross was an invited National Climatic Data Center (NCDC) participant at the Fairview Elementary School's Career/Occupational Fair. Individuals from approximately 25 different professions gave classroom presentations during the course of the program. Students from grades K-5 were given the opportunity to talk with the professionals and learn what is involved in choosing a career in a particular field. Tom gave the students information about what it takes to become a meteorologist and the different opportunities that are available.

Boy Scout Presentation

Tom Ross gave a presentation to a Boy Scout troop in Haw Creek. The scouts built their own barometer and learned different aspects of meteorology and climatology.

NCDC Data Volumes

